PS2601
AC Power Switch

INTEGRATED CIRCUITS DIVISION



Parameter	Rating	Units
AC Operating Voltage	260	V_{rms}
Load Current	1	A_{rms}
On-State Voltage Drop (I_L=1A_{rms})	1.2	V_{rms}

Features
- Load Current up to 1A_{rms} (3A_{rms} with heat sink)
- Blocking Voltages up to 600V_P
- 5mA Sensitivity
- Zero-Crossing Detection
- DC Control, AC Output
- Optically Isolated
- TTL and CMOS Compatible
- Low EMI and RFI Generation
- High Noise Immunity
- VDE compatible
- Machine Insertable, Wave Solderable

Applications
- Programmable Control
- Process Control
- Power Control Panels
- Remote Switching
- Gas Pump Electronics
- Contactors
- Large Relays
- Solenoids
- Motors
- Heaters

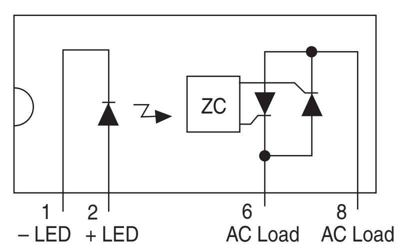
Description
The PS2601 is an AC Solid State Switch using optical coupling with dual power SCR outputs to produce an alternative to optocoupler and Triac circuits. The PS2601 switches are robust enough to provide a blocking voltage of up to 600V_P and max surge current rating of 20A. In addition, tightly controlled zero-cross circuitry ensures switching of AC loads without the generation of transients. The input and output circuits are optically coupled to provide 3750V_{rms} of isolation and noise immunity between control and load circuits. As a result the PS2601 is well suited for industrial environments where electromagnetic interference would disrupt the operation of electromechanical relays.

Approvals
- UL Recognized Component: UL 508 File E69938
- CSA Certified Component: Certificate LR43639-8

Ordering Information

Part #	Description
PS2601	4-Pin (8-Pin Body) SIP Package (25/Tube)

Pin Configuration



Absolute Maximum Ratings @ 25ºC

Parameter	Min	Max	Units
Blocking Voltage	-	600	V_P
Reverse Input Voltage	-	5	V
Input Control Current	-	100	mA
Peak (10ms)	-	1	A
Input Power Dissipation [1]	-	150	mW
Total Package Dissipation [2]	-	1600	mW
Isolation Voltage, Input to Output	3750	-	V_{rms}
Operational Temperature	-40	+85	ºC
Storage Temperature	-40	+125	ºC

[1] Derate linearly 1.33 mW / ºC

[2] Derate linearly 16.6 mW / ºC

Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.

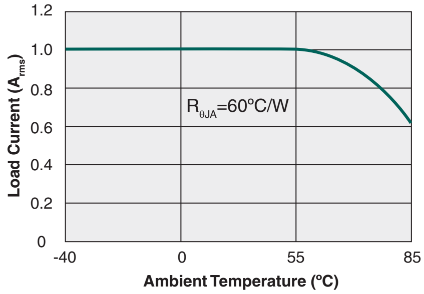
Electrical Characteristics @ 25ºC

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Output Characteristics						
AC Operating Voltage	I_F=5mA	V_{OP}	20	-	260	V_{rms}
Load Current (Continuous)	V_L=120-240VAC	I_L	0.005	-	1	A_{rms}
Maximum Surge Current	t≤16ms	I_{PEAK}	-	-	20	A
Off-State Leakage Current	V_L=600V_{DC}	I_{LEAK}	-	-	1	mA
On-State Voltage Drop	I_L=1A_{rms}	-	-	-	1.2	V_{rms}
Critical Rate of Rise	-	dV/dt	1000	1200	-	V/µs
Switching Speeds						
Turn-On	I_F=5mA	t_{on}	-	-	0.5	Cycles
Turn-Off	I_F=5mA	t_{off}	-	-	0.5	Cycles
Zero-Cross Turn-On Voltage	1st half-cycle	-	-	2	5	V
	Subsequent half-cycle	-	-	-	1	V
Operating Frequency [1]	-	-	20	-	500	Hz
Load Power Factor for Guaranteed Turn-On [2]	-	PF	0.25	-	-	-
Capacitance Input-To-Output	-	$C_{I/O}$	-	3	-	pF
Input Characteristics						
Input Control Current						
For Normal Environment	-	I_F	-	-	5	mA
For High Noise Environment	-	I_F	-	-	10	mA
Input Voltage Drop	I_F=5mA	V_F	0.9	1.2	1.4	V
Input Dropout Voltage	-	-	0.8	-	-	V
Reverse Input Current	V_R=5V	I_R	-	-	10	µA

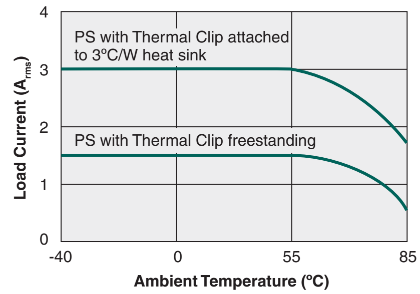
[1] Zero Cross 1st half-cycle @ < 100Hz.
[2] Snubber circuits may be required at low power factors.

PERFORMANCE DATA*

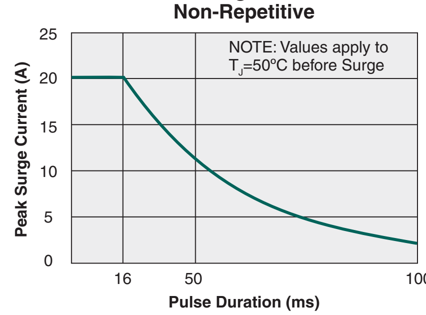
Load Current Free Air



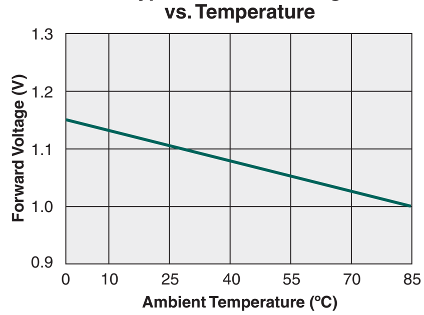
Load Current Heat Sink



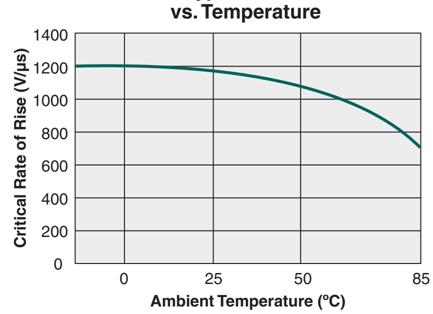
Max. Surge Current Non-Repetitive



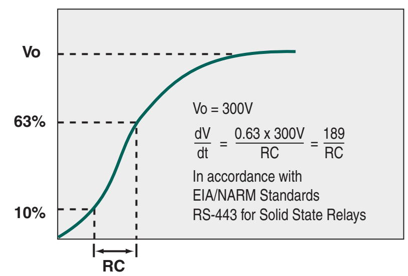
Typical Forward Voltage vs. Temperature



Typical dV/dt vs. Temperature



dV/dt Method



*The Performance data shown in the graphs above is typical of device performance. For guaranteed parameters not indicated in the written specifications, please contact our application department.

Manufacturing Information

Moisture Sensitivity

All plastic encapsulated semiconductor packages are susceptible to moisture ingression. IXYS Integrated Circuits Division classified all of its plastic encapsulated devices for moisture sensitivity according to the latest version of the joint industry standard, **IPC/JEDEC J-STD-020**, in force at the time of product evaluation. We test all of our products to the maximum conditions set forth in the standard, and guarantee proper operation of our devices when handled according to the limitations and information in that standard as well as to any limitations set forth in the information or standards referenced below.

Failure to adhere to the warnings or limitations as established by the listed specifications could result in reduced product performance, reduction of operable life, and/or reduction of overall reliability.

This product carries a **Moisture Sensitivity Level (MSL) rating** as shown below, and should be handled according to the requirements of the latest version of the joint industry standard **IPC/JEDEC J-STD-033**.

Device	Moisture Sensitivity Level (MSL) Rating
PS2601	MSL 1

ESD Sensitivity

This product is **ESD Sensitive**, and should be handled according to the industry standard **JESD-625**.

Reflow Profile

This product has a maximum body temperature and time rating as shown below. All other guidelines of **J-STD-020** must be observed.

Device	Maximum Temperature x Time
PS2601	245°C for 30 seconds

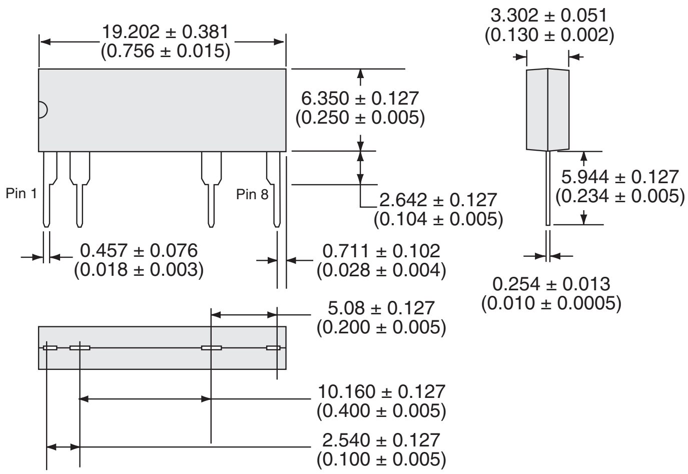
Board Wash

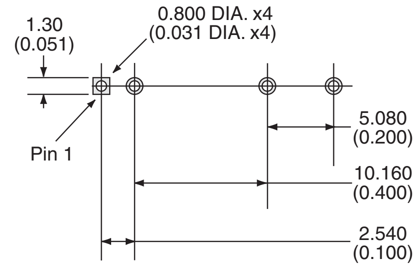
IXYS Integrated Circuits Division recommends the use of no-clean flux formulations. However, board washing to remove flux residue is acceptable. Since IXYS Integrated Circuits Division employs the use of silicone coating as an optical waveguide in many of its optically isolated products, the use of a short drying bake could be necessary if a wash is used after solder reflow processes. Chlorine- or Fluorine-based solvents or fluxes should not be used. Cleaning methods that employ ultrasonic energy should not be used.

Pb RoHS e3

Mechanical Dimensions

PS2601





Dimensions
mm
(inches)

For additional information please visit our website at: www.ixysic.com

Specification: DS-PS2601-R13

12/22/2012